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ABSTRACT

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"DON'T FENCE ME IN":

PERSONAL SPACE DEPENDS UPON ARCHITECTURAL ENCLOSURE*

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ABSTRACT

Proxemic behavior was unobtrusively observed in open and enclosed environments with concurrent variation of the approach of subject to confederate or confederate to subject. The sex of subject and the sex of confederate were also varied, with nesting on the sex of confederate variable. A robust environment effect indicated that personal space is larger in enclosed areas. The nesting variable also proved significant, indicating that some difference between confederates other than sex contributed to personal space differences. Further research is recommended with respect to the effects on human proxemic behavior of both design variables and personal characteristics of the others.

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* Paper presented by Dr. Cooper at the 83rd Annual Convention of the American Psychological Association, Chicago, September, 1975.

Introduction

Recently there has been much concern regarding the effect of the environment on behavior, particularly the effects of those parts of the environment that are most amenable to design and human intervention. Architecture is both one of the most changeable aspects of the human environment and one of the strongest in its effect on human behavior. The following is a report of a preliminary study of the effect of an architectural variable on personal space behavior.

Personal space research and theory (e.g., Hall, 1964; Little, 1965) have focused on personal space as the limiting degree of closeness for comfortable interaction between people. It has been assumed that, for a particular degree of intimacy, this distance is relatively constant within an individual; some research has supported this assumption, at least within a limited range of situations (Horowitz, 1968; Patterson, 1973). However, other research has found variations in personal space within subjects. For example, Aaronson (1967) manipulated the apparent depth of the environment by hypnosis and found substantial changes in spatial behaviors.

More directly related to the human environment design issue are the studies by Dabbs, Fuller, and Carr (1973) and Price and Dabba (1974). In both of these experiments, subjects in the corner of a room preferred larger distances than did the same Ss in the center of the room. It was also noted that whether the

subject approached the other or was approached by the other was important in determining the limit of closeness of interpersonal interaction. Both studies seem to indicate that enclosure (corner) leads to greater demands for personal space than does the lack of enclosure (middle of room). However, it should be noted that both studies used the device of asking the subject to stop or have the approaching other stop at a comfortable interaction distance; this rather obtrusive measure may have the undesirable effect of measuring the subjects' theories about human spatial behavior, rather than the actual behavior of subjects in similar but naive situations.

The present research was an attempt to investigate the effects of enclosure of the physical location in which interaction occurred and whether the person approached or was approached by the other, using unobtrusive observation techniques. In addition, both the sex of the subject and the sex of the other were varied independently in the present study.

Method

Design. The study involved four variables in a factorial design. The variables were location (enclosed vs. open), approach (S approach confederate vs. S approached by C), sex of subject, and sex of confederate. In addition, two confederates of each sex were nested within the sex of confederate variable. Each confederate interacted with three subjects in each cell of the appropriate half of the design, resulting in a total of 96 obser-

vations. All 96 subjects were undergraduates at Miami University who were fulfilling introductory psychology research requirements by participating in the experiment.

Procedure. Subjects were told that the experiment was a study of the impression formation process, and that it would involve them meeting and talking with another person about an issue of interest to both. For the approach condition, subjects were told that they would find the other subject (C) waiting in a certain room (enclosed condition) or standing near a chalked yellow cross on the sidewalk crossing the open space just outside the building (open condition). (In these conditions, the confederate maintained position until the subject achieved a stable interaction distance, at which time the measurement of distance was taken unobtrusively.)

For the approached condition, subjects were told to wait in a certain room, or to wait by the cross on the sidewalk, depending on the location condition. The confederate shortly thereafter approached the subject to well within the comfortable interaction distance (about 12 inches or 30 cm) and held position until the subject readjusted the distance to a stable position, at which time the measurement was taken.

As soon as the measurements had been taken, the confederate debriefed the subject with respect to the interpersonal distance aspect of the experiment, answered any questions, and thanked the subject for being in the experiment.

Locations. The enclosed location was a 7.3 x 21.0 x 9.0 ft. (2.2 x 6.4 x 2.7 m) room with two oneway mirrors and a bookcase on one of the long walls. The open location was the midpoint of a sidewalk diagonally crossing an open area between the psychology building, a parking lot, and the highway which bisects the campus. The open location was approximately 46 ft (14 m) from the psychology building.

Measurement. For the enclosed location, observers behind the one-way mirrors judged the interaction distance aided by marks at six inch (15.24 cm) intervals on the opposite baseboard. Preliminary testing showed that observers were able to judge distance to within one inch (2.54 cm) from the vantage point.

For the open location, the problem of unobtrusive measurement was solved by taking slides of the interaction from a ground floor window inside the psychology building some 46 feet away.[2] Slides of the interactions were taken with a tripod mounted Nikon Ftn 35 mm SLR camera with a Vivatar 90-230 zoom lens using Kodak EH-135 high speed Ektachrome film (ASA 160). The lens was extended so that each interaction filled the slide frame as nearly as possible. When the slides were developed and projected, the film height of confederate and interaction distance were measured, and, given the known actual height of the confederate, the proportion was solved for the actual interaction distance Preliminary testing of this process revealed it to be accurate to within less than two inches (5.08 cm), depending on the care with which the measurements were taken.

Results

The data were analyzed with the assistance of the SAS computer analysis package[3], using a 2^4 factorial design with nesting on the last factor. Preliminary testing (cf. Winer, 1962) revealed some of the nested interactions to be significant, and for this reason the sex of confederate variable cannot be discussed in this report. Following the procedure recommended by Winer, each main and interaction effect not involving the nested factor was tested by the corresponding interaction with the nested factor. Under this procedure, each of the F tests has $v_1=1$ and $v_2=2$ degrees of freedom, requiring a very robust effect in order to observe significance. In the present case, only the location variable proved significant ($F=19.96$, $p=.047$). An inspection of the means revealed that persons in the open environment interacted at closer distances than did those in the enclosed environment (24.44 vs 51.63 inches or 62.08 vs. 131.14 cm).

Discussion

Two aspects of the present study are particularly worthy of note. One of these is the robustness of the location effect under statistical procedures used. That an effect should prove significant under the model involved in this procedure indicates that it occurred for each of the apparently significantly different confederates, suggesting a rather strong generality for the effect. The second aspect is the use of relatively unobtrusive measurement in an area still plagued by the tendency to use extremely reactive measures. To those who believe Heider's (1958) treatise with

respect to the existence of a naive psychology of human behavior, this movement away from such transparent and reactive measures seems a necessary step if we are to study human behavior rather than subject's theories of human behavior.

An additional aspect of the present study is the significant nesting effects observed in the data. These may be considered as consistent reactions to each confederate by the subjects in each cell, but no consistency in reactions to different confederates as a function of the sex of the confederate. Thus, some other factors, not investigated in this study, must be the cause of the different reactions to the various confederates, a phenomenon which could only be revealed through the nested design and analysis used in this study. Further research is clearly indicated to decipher what factors or characteristics of persons, other than their sex, might lead to such differences in personal space reactions to them.

It further seems obvious that additional research is necessary in the area of the effect of design variables on human behavior. In the present state of advocacy regarding environmental variables and human behavior, it is much to be preferred that decisions be based on the hard reality of research well done than upon the tenuous foundation of theory.

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Footnotes

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2. Several graduate students were told that the camera was located inside one of the several windows on the appropriate side of the building and asked to see if, standing in the appropriate location, they could find the camera. After an average of about two or so minutes, most were unable to accurately locate the camera. We consider this strong evidence that subjects were not aware of the location or existence of the camera during the observation period.

3. Statistical Analysis System, Department of Statistics, North Carolina State University, as implemented at the Southwestern Ohio Regional Computing Center.